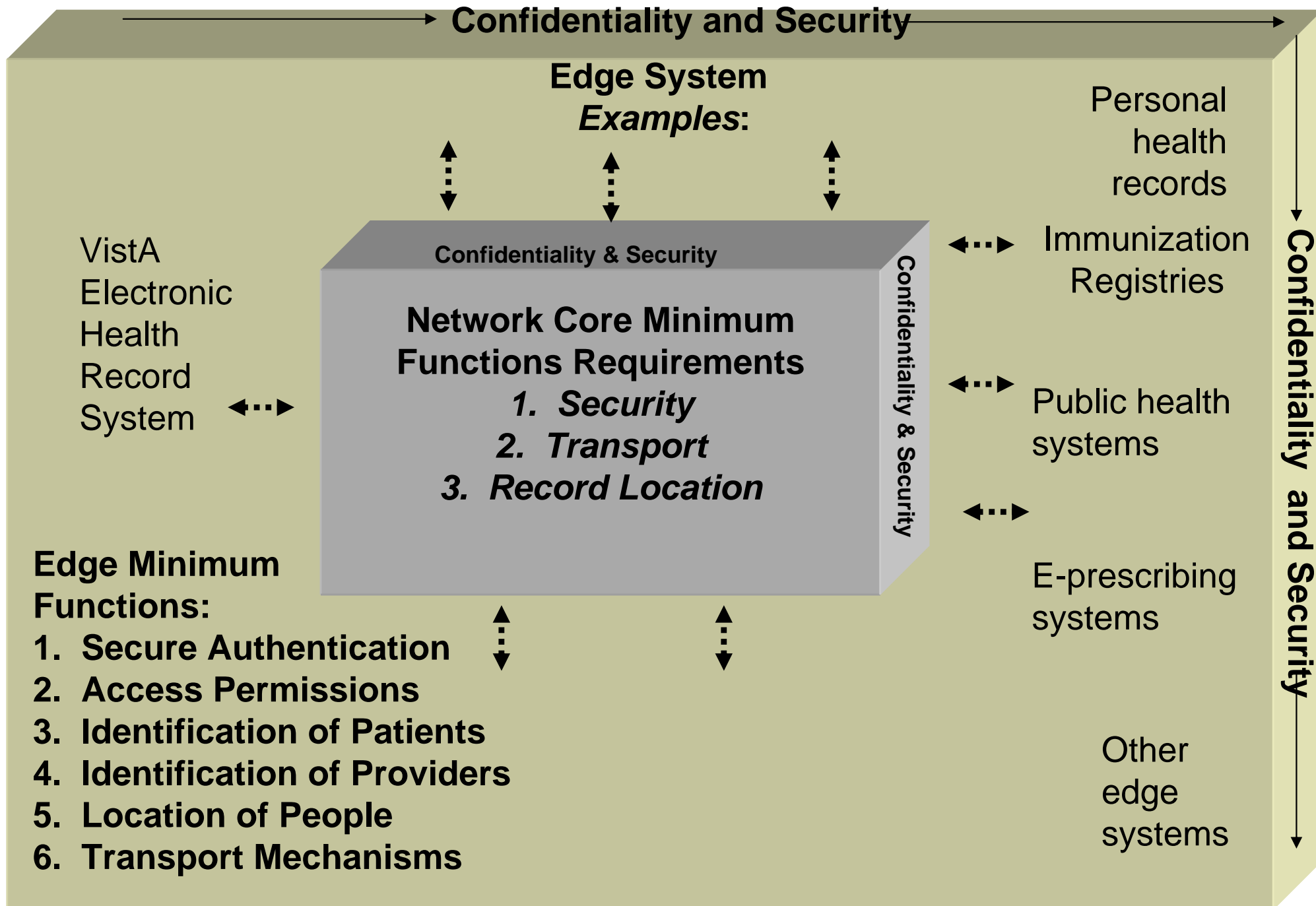# Functional Requirements for the Nationwide Health Information Network

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July 26, 2006

Confidentiality and Security

Edge System
Examples:

Personal
health
records

**VistA
Electronic
Health
Record
System**

Confidentiality & Security

**Network Core Minimum
Functions Requirements**
1. Security
2. Transport
3. Record Location

Confidentiality & Security

Immunization
Registries

Public health
systems

E-prescribing
systems

**Edge Minimum
Functions:**
1. **Secure Authentication**
2. **Access Permissions**
3. **Identification of Patients**
4. **Identification of Providers**
5. **Location of People**
6. **Transport Mechanisms**

Other
edge
systems

Confidentiality and Security

Proposed Nationwide Health Information Network Functional Categories

- Audit and logging
- Authentication
- Authorization
- Confidentiality
- Credentialing
- Data access and update
- Data content
- Data filtering
- Data mapping/translation
- Data quality/data integrity

- Data rendering
- Data retrieval (pull)
- Data routing
- Data source
- Data transmission (push)
- Data usage
- Identity/information correlation
- Persistent data storage
- Record location
- Transient data

NHIN Minimum Core Functions

What are the "minimum but essential" network functional requirements for the initial roll out of the NHIN, i.e. the functions for the nationwide network itself, not for specific edge systems or entities?

- Audit and Logging
  - Edge system connect/disconnect
- System Security
  - Credentialing of Edge systems
  - Protection from threats
- Transport of Data
  - Cross industry transports (not Health specific)
- Record Location
  - Record Type Locator (no PHI)
  - Location and availability of Edges and their services

Edge System Minimum Functions

For specific edge systems or entities, what functions would be 'minimum but essential' for linking to the network?

- Audit and Logging
  - HIPAA Disclosure Accounting
- Authentication
  - Minimal Change (local Entity authenticates)
  - Longer Term (cross Entity authentication)
- Authority to Use and/or Disclose
  - Minimum Change (Local Entity provides authority)
  - Longer Term (Cross Entity Authority)
- HIPAA Authorization
  - Link Confidentiality controls to Patient Authorization
- Confidentiality
  - Minimum Change (Local Entity controls confidentiality)
- Credentialing
  - System Credentialing (NHIN Core controls)
  - User Credentialing (Local Entity controls)

Edge System Minimum Functions, cont.

- Data Access and Update
  - Only a source edge system may provide data
  - Updates may be provided
- Data Content
  - Versioned types identified in Edge Registry
- Data Filtering
  - By source Edge for confidentiality and other constraints
  - By consumer Edge for confidentiality and content selection
- Data Mapping/Translation
  - Map and translate to the standard requested by the consumer
- Data Quality/Data Integrity
  - Integrity – Error handling in transport. Non recovery indication
  - Structural Conformance – Validation of record optional
  - Completeness – Mandatory and optional elements

Edge System Minimum Functions, cont.

- Data Rendering
  - Total responsibility of the consuming Edge
- Data Retrieval (Pull)
  - Retrieve by unique record identity
  - Retrieve by Patient Id + Record Type + Date Range
- Data Routing
  - Edges will expose an interface to the NHIN and will be responsible for all redistribution to systems
- Data Source
  - Source systems may only support data retrieval or transmission of their owned records
- Data Transmission (Push)
  - Person matching
  - Record Update
  - Transactions
- Data Usage
  - Under Authority to Use control

Edge System Minimum Functions, cont.

- Identity/Information Correlation
  - Identification/correlation of Patients
  - Identification of Providers
- Persistent data storage
  - PHI is held inside the Edge system security perimeter
  - Only released as part of Person identification or for transient data
- Record Location
  - Record location is a combination of record type location (in the NHIN core Edge Registry) and Person Identity/Location
- Transport Mechanism
  - Transport mechanisms are those required to connect to the NHIN. Transports behind the Edge are undefined.
- Transient Data
  - Retention of data from a source Edge by a consuming Edge should be restricted to a standard inactivity time.

Standards

- Isolation of high level protocols
  - Lower transports should have cross industry acceptance
  - High level standards should be isolated from the lower transports (e.g. no MLLP or DICOM transport)
- Metadata should be in standards such as XSD (XML schemas) or UML.
- New standards needed for
  - Audit and log information
  - Identity matching algorithm
  - Purpose for Use, and other topic terminologies